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Patentanmeldung Nr. Patent application No. Demande de brevet n°

97203667.7

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**Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation**

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System for processing television broadcasted signals

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The original title of the application reads as follows:
System for processing broadcasted signals

EP 2162-dv/jk

System for processing broadcasted signals

The present invention relates to a system for processing broadcasted signals.

Such systems are known and include analogue TV sets and digital TV sets. Digital TV sets operate in accordance with the DVB (Digital Video Broadcasting) standard and recently introduced digital TV sets are enhanced with peripherals like modems for user-feedback. Further, micro-computers, in particular PC's, are generally known for which recently internal or external devices are introduced for receiving broadcasted signals, such as analogue or DVB signals. An example of such a device is an integrated network PC card. PC's with modems are widely used to access the internet, wherein generally a browser program is used. These recent developments show an integration of PC and TV technology.

The present invention aims to provide a system providing further integration of PC and TV technology.

According to the invention a system is provided for processing broadcasted signals, comprising a microcomputer, means for tuning to a broadcast channel, means for processing the signals received on a broadcast channel, said processing means providing video, audio and/or data signals for further processing by the microcomputer, said system further comprising means to connect the system to the internet and means for processing IP signals and for displaying web pages including URL's, wherein a number of URL's for broadcast services are defined, said system comprising means for controlling the tuning means to tune to a broadcast service as indicated by a selected URL.

The invention will be further explained by reference to the drawing in which the software architecture of an embodiment of the system according to the invention is schematically shown.

A system for processing Digital Video Broadcasting (DVB) signals comprises a microcomputer not further shown. The microcomputer is provided with a DVB device 1 also called a network card. This DVB device can be tuned to a specific transport stream as controlled by a driver 2 as will be further explained hereinafter. The microcomputer is connected to the internet and to a MPEG signal source, for example through a satellite, cable or terrestrial transmission. When the DVB device 1 is tuned to a specific transport stream, the video, audio or data information received is further processed in a manner known per se so that for example the video information will be displayed on the microcomputer monitor.

In the embodiment shown in the drawing, a browser program is used to access the internet and by connecting to a certain web site a web page can be displayed on the monitor in a manner known per se. Such web pages may contain one or more URL's providing a connection to another web site by clicking on such a URL. According to the present invention URL's are used to tune the DVB device 1 to a specific DVB service in the following manner. Activating a selected URL results in providing an IP address by the browser 3 to an IP stack 4. The IP stack 4 computes a so-called MAC (Medium Access Control) address from the IP address received from the browser 3. A control program 5 which is part of the driver 2, receives this MAC address and looks up corresponding tuning information and a service identification from a navigation table 6. This tuning information and service identification are used by the driver 2 to control the DVB device 1 to tune to the DVB service corresponding to the selected URL. As the operation for tuning the network card or DVB device 1 to the correct transport stream is generally known in DVB technology, this tuning is not further described.

In this manner a standard browser program 3 with IP stack 4 which is also standard in multicast Ethernet applications, can be used to tune the network card to the DVB

service. Thereby the system provides a full integration of PC and DVB TV technology in a simple manner. The network card 1 can be tuned to a desired DVB service by simply clicking for example on the name of this DVB service.

5 According to a favourable embodiment the micro-computer is programmed such that the user can select a plurality of HTML pages for storing in memory so that frequently used web pages can be immediately displayed. For example an electronic program guide can be stored in
10 this manner in memory in the microcomputer so that this program guide is immediately available to the user. In this program guide URL's can be embedded for each of the DVB services included in the program guide. By clicking on a URL for a selected DVB service the network card 1 will be tuned
15 to the desired DVB service. Of course it is also possible to have a default setting in the computer for storing certain HTML pages.

As an alternative for a system based on a PC as a microcomputer, the system can be based on a DVB TV set
20 having a so-called set top box. This set top box is preferably configured to cache a plurality of HTML pages as electronic program guide pages for the DVB TV set. As the set top box has a connection to the internet, one or more of the
25 cached pages can provide URL's to internet sites instead of DVB services. In the present specification the word micro-computer is used to cover a PC, set top box or any other equivalent equipment. Further it is noted that the word internet is used to cover also any intranet or other equivalent network.

30 In an other embodiment of the system described, a special broadcast enhanced browser can be used, wherein the enhancement provides for processing of special URL syntax DVB addresses, wherein the normal internet address in a URL is replaced by a DVB address as follows:

35

dvb://<original network id.>.<service id>/

In this example the DVB address is a 16 bit original network identifier in combination with a 16 bit service identifier. For compatibility with the internet protocol, the two 16 bit values can be split into four 8 bit values. The DVB address
5 will be indicated in this specification as <DVB address>.

In a further embodiment, the URL can contain an indication of the type of DVB service such as TV, radio and data, in the following manner:

10 dvb-tv://<DVB address>
 dvb-radio://<DVB address>
 DVB-data://<DVB address>.

It is noted that in the above described embodiments MPEG signals are mentioned as an example of broadcast signals. It is also possible to apply the invention in a
15 system operating with analogue signals. It is further noted that the wording 'broadcast channel' covers any non IP based broadcast channel.

CLAIMS

1. System for processing broadcasted signals, comprising a microcomputer, means for tuning to a broadcast channel, means for processing the signals received on a
5 broadcast channel, said processing means providing video, audio and/or data signals for further processing by the microcomputer, said system further comprising means to connect the system to the internet and means for processing IP signals and for displaying web pages including URL's,
10 wherein a number of URL's for broadcast services are defined, said system comprising means for controlling the tuning means to tune to a broadcast service as indicated by a selected URL.

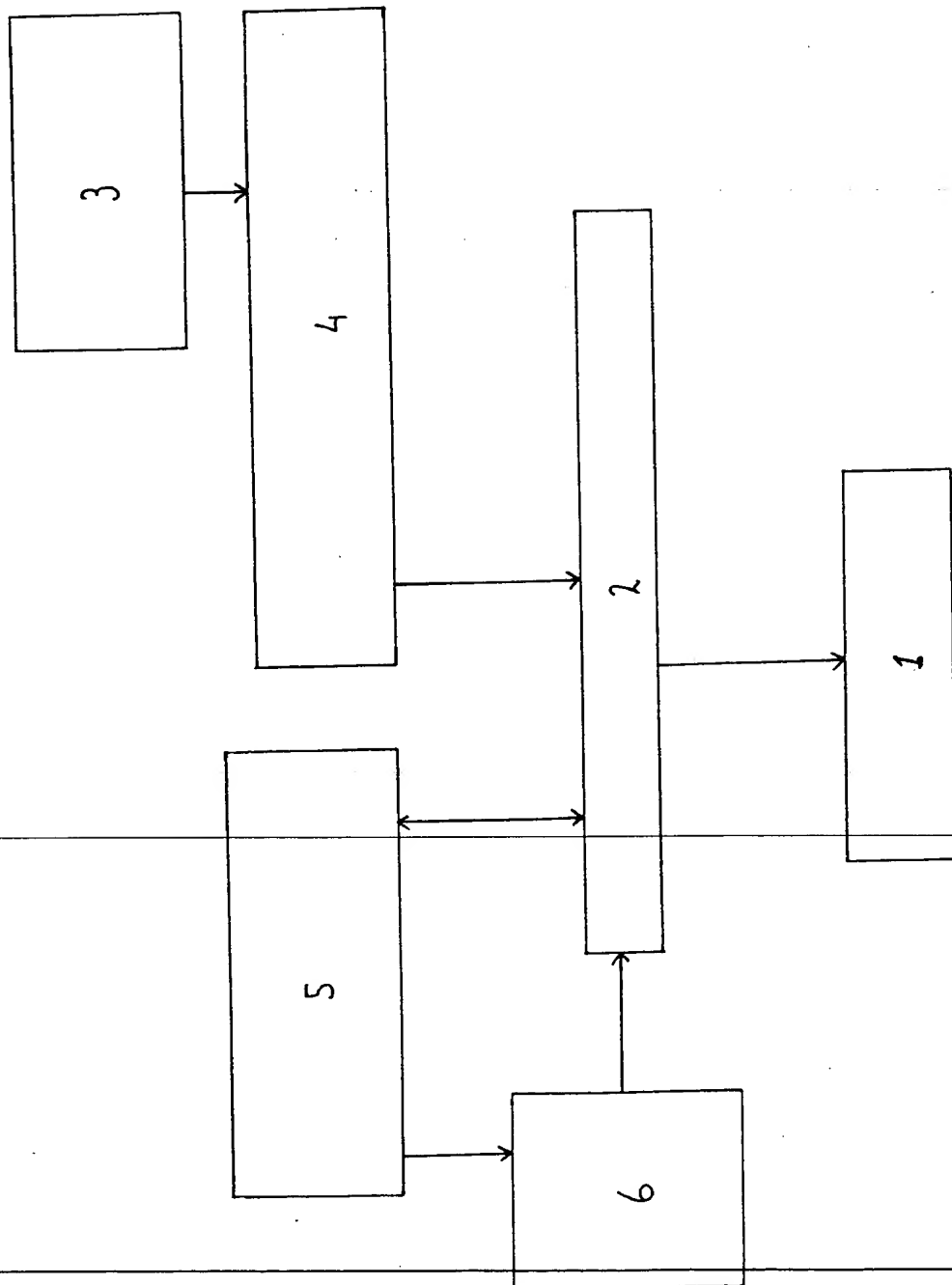
2. System according to claim 1, wherein said
15 broadcasted signals are MPEG signals, said processing being made to process a MPEG transport stream.

2. System according to claim 1 or 2, wherein the URL's for broadcast services are defined in a broadcast URL syntax (broadcast://<broadcast address>), wherein said means
20 for processing IP signals are adapted to process such broadcast URL's and to operate as controlling means for the tuning means.

3. System according to claim 1 or 2, wherein the URL's for broadcast services are defined as standard IP
25 URL's, wherein said means for processing IP signals provides a MAC address in accordance with the selected URL, said tuning means comprising means for translating said MAC address into a broadcast service identification used for controlling the tuning means.

30 4. System according to any one of the preceding claims, comprising means for selecting a plurality of HTML pages and means for caching the selected HTML pages.

5. System according to claim 4, wherein said HTML pages include an electronic program guide, said electronic program guide including URL's for broadcast services.



ABSTRACT

A system for processing broadcast signals comprises a microcomputer, means for tuning to a broadcast channel and means for processing a broadcast transport stream.

The processing means provides video, audio and/or data

5 signals for further processing by the microcomputer in a usual manner. The system further comprises means to connect the system to the internet and means for processing IP signals and for displaying web pages including URL's, a so-called browser program. A number of URL's for broadcast
10 services are defined and the system comprises means for controlling the tuning means to tune to a broadcast service as indicated by a selected URL.
